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## PATENT SPECIFICATION

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## COMPLETE SPECIFICATION.

## Improved Method of Treating Fibres.

We, OBERRHEINISCHE HANDELSGESELLSCHAFT M.B.H., a German company, of Karlsruhe, Baden, Germany, and LEO UBBELOHDE, of German nationality, of 5 11, Wendtstrasse, Karlsruhe, Baden, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and 10 by the following statement:—

It has already been proposed to make fibres having only a moderately good spinning structure capable of being spun satisfactorily, the characteristic feature 15 of such methods consisting in this, that the fibres, for giving them a rough surface, are temporarily treated with sharp-edged grains of powder in apparatus which are suitable for bringing the 20 roughening agents in a dry or wet state in suitable contact with the fibres. After the treatment the grains of powder are to be removed again.

In the practical application of such a 25 method the roughening agents are removed partly so that they may be used again, more particularly in view of the fact that they are hardly worn off at all and can therefore be used repeatedly to an almost unlimited extent, and partly for avoiding the forming of dust in the spinning mill, where it would be a nuisance.

It is, however, not possible to remove 35 the roughening agent completely without trouble as a portion of the grains adheres so firmly to or in the fibres that they cannot be removed by the ordinary means used for this purpose, more particularly if the fibres have been subjected before the treatment or before the removal of the dust to the usual greasing process.

It has been found that the quantities 45 of particles remaining attached to the fibres are so small that they no longer have any detrimental effect whatever,

either when the fibres are being spun or in the finished product. It has therefore been found that preferably only the excess of roughening agents need be removed, which does not adhere to the fibres and therefore only represents unnecessary ballast. Hence the removal of the roughening agent is carried no further.

The roughening agents still remaining on the fibres have a favourable effect on the spinning operation. They make the yarn more voluminous and more resistant to tearing.

In certain circumstances it may therefore be of advantage to assist the adhesion of the roughening agents by adding substances which have this effect. Suitable roughening agents would be powdered glass, powdered carborundum, keiselguhr, silica gel and other amorphous substances such as lime.

The granular roughening agents may, 70 for instance, be added along with the greasing agent or after having been mixed with the same or some other agent assisting the adhesion. Or the roughening agent may be reduced to slime with water or some other liquid and mixed with the fibres, after which the latter are dried.

This is effected, for instance, by removing the liquid after mixing by centrifugal action and thereupon drying the mixture of fibres and grains of powder in any suitable manner.

During the drying operation mechanical pressure may be applied to the 85 mixture. The stronger the pressure, the greater is the change in the surface and form of the fibres. Finally the material is freed from dust as far as necessary.

The granular roughening agent may be added at the same time as the agent which assists it to adhere or before or after.

In the case of long fibres, such as artificial silk or staple fibre, materials with softer edges, such as silica gel or other organic or inorganic substances, have been found to be satisfactory for roughening agents.

The addition of the roughening agents and the treatment with the same may be effected at any stage of the manufacture of the fibres and the manufacture of material therefrom, for instance in spinning. In the case of artificial silk or staple fibre the roughening agents may be added in any of the operations following the forming of the fibre, for instance during the hardening, reeling, curling, cutting or the like operations.

Particularly satisfactory results are obtained when the method is applied to curling products or by the combination of the treatment with roughening agents and the curling.

The treatment may be carried out in any apparatus which are suitable for bringing the fibrous materials into intimate contact with the roughening agents.

The methods described above may be applied to all the usual fibres of vegetable or animal origin. Such fibres are more particularly wood cellulose, cottonised fibres of flax, hemp and the like, nettles (all kinds of nettles from the botanical family of the urticaceæ, for instance *urtica dioica* and *bœhmeria nivea*), capoc artificial silk, artificial silk waste, staple fibres of various lengths, animal hair, cotton, artificial cotton,

silk wool, jute and the waste and mixtures of such substances.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A method of rendering fibres more suitable for spinning by temporarily treating them with sharp-edged grains of powder in apparatus which are suitable for bringing the roughening agents in a dry or wet state in suitable contact with the fibres and removing the excess of the grains of powder after the treatment, characterised by the feature, that the roughening agents are not completely removed.

2. A method as claimed in Claim 1, characterised by the feature, that the roughening agents are added at any stage of the manufacture of the fibres or the manufacture of material therefrom.

3. A method as claimed in Claims 1 and 2, characterised by the feature, that the adhesion of the roughening agents is assisted by substances favouring such adhesion.

4. A method as claimed in Claims 1 and 2, characterised by the employment of roughening agents having less sharp edges, for instance silica gel.

5. The improved method of rendering fibres more suitable for spinning, substantially as hereinbefore described.

Dated this 2nd day of March, 1925.

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